



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Ryan et al. Examiner: Rodriguez, J.
Serial No.: 09/383,508 Group Art Unit: 3653
Filed: August 26, 1999 Docket No.: AMDA.389DIV1
Title: RETICLE SORTER

\$ AF/
3653
13/Appeal
Brief
8/31/01

CERTIFICATE UNDER 37 CFR 1.8: The undersigned hereby certifies that this correspondence and the papers, as described hereinabove, are being deposited in the United States Postal Service in triplicate, as first class mail, in an envelope addressed to: Assistant Commissioner for Patents, Washington, D.C. 20231, on August 22, 2001.

By: Kelly Waltigney
Kelly Waltigney

APPEAL BRIEF

RECEIVED

Assistant Commissioner for Patents
Washington, D.C. 20231

AUG 31 2001

Sir:

7 3600 MAIL ROOM

This is an Appeal Brief submitted pursuant to 37 CFR section 1.192 for the above-referenced patent application and is being filed in triplicate.

I. Real Party in Interest

The real party in interest is Advanced Micro Devices, Inc. (AMD), of Sunnyvale, CA. The above-referenced patent application is assigned to AMD.

II. Related Appeals and Interferences

There are no related appeals or interferences.

III. Status of Claims

Claims 1-12 and 19 are being formally appealed. The pending claims in their presently amended form may be found in the Appendix.

IV. Status of Amendments

On November 20, 2000 a first Office Action was mailed and in reply, an Amendment was filed on February 20, 2001. A final Office Action was then mailed on March 22, 2001

09/30/2001 STEFFERA 00000013 010365 09383508

01 00:120 310.00 CH

followed by an After Final Response filed on May 30, 2001. An Advisory Action was mailed on June 11, 2001 and, in response, a Notice of Appeal was filed on June 22, 2001.

V. Summary of Invention

Appellants' invention is directed to a reticle sorter coupled between a reticle storing system 210 and one or more photolithography exposure tools 220. The sorter includes one or more bays 130 that are adapted for holding a cassette 320 having slots for reticles 324. The sorter also includes a sorting system, which has been adapted for retrieving the reticles from and inserting the reticles into the slots in order to sort the reticles within the cassette (FIGs. 3A & 3B; page 5, lines 25-30). In another embodiment, one or more bays are adapted for holding a plurality of cassettes and a sorting arrangement adapted for sorting the reticles between cassettes (page 5, lines 8-12).

VI. Issues for Review

The claims 1-12 and 19 on appeal stand rejected under §112, first and second paragraphs for lack of enablement and definiteness. In addition, claims 1, 3, 5, 7 and 9-12 stand rejected under §103(a) as being unpatentable over *Iizuka* (U.S. Patent No. 4,999,671) in view of *Sussman et al.* ("*Sussman*," U.S. Patent No. 5,664,926); claims 2 and 8 stand rejected under §103(a) as being unpatentable over *Iizuka* and *Sussman et al.* and further in view of *Umatate et al.* ("*Umatate*", U.S. Patent No. 5,243,377); and claims 4 and 6 stand rejected under §103(a) as being unpatentable over *Iizuka* and *Sussman* and further in view of *Rosenquist* (U.S. Patent No. 6,082,949).

The issues are as follows:

1. Under §112(2), does the phrase "adapted for" render claims 1, 8, 11 and 19 indefinite?
2. Can the rejection based on obviousness be upheld where the asserted combination of *Iizuka* and *Sussman* admittedly fails to teach the claimed invention including a sorting system adapted for retrieving the reticles from and inserting the reticles into the slots in order to sort the reticles within the cassette?
3. Can the rejection based on obviousness be upheld without evidence of motivation for the asserted combination of *Iizuka* and *Sussman*?

4. Can the rejection based on obviousness be upheld where the asserted combination of *Iizuka*, *Sussman* and *Umatate* fails to teach the claimed invention including a controller for controlling the sorting of the reticles in response to a command from a host system?
5. Can the rejection based on obviousness be upheld where the asserted combination of *Iizuka*, *Sussman* and *Umatate* admittedly fails to teach the claimed invention including an inspection system that includes a tool adapted for detecting flaws in a reticle pattern?
6. Is the §112(1) rejection proper when the Specification provides sufficient description to enable one skilled in the art to understand how the reticle sorter protects, orients and stabilizes the reticles during the reticle sorting process?

VII. Grouping of Claims

The claims as now presented do not stand and fall together and are separately patentable for the reasons discussed in the Argument. For purposes of this appeal, the claims should be grouped as follows: Group I - claims 1, 3-7, 9-12 and 19; Group II – claim 2; and Group III – claim 8.

VIII. Argument

Appellants submit that the claims of Groups I – III are patentably distinguishable from each other and from the cited prior art references. The claim of Group II includes the limitations of a controller for controlling the sorting of the reticles in response to a command from a host system; these limitations are not necessarily present in the claims of Group I and claim of Group III and this aspect of the invention is not taught or disclosed in any of the asserted prior art references. The claim of Group III includes the limitations of an inspection system that includes a tool adapted for detecting flaws in a reticle pattern; these limitations are not necessarily present in the claims of Group I and the claim of Group II and this aspect of the invention is not taught or disclosed in the asserted prior art references.

Issue 1 applies only to Groups I and III, Issues 2 and 3 apply to Group I, Issue 4 applies only to Group II, Issue 5 applies only to Group III, and Issue 6 applies to Groups I-III.

1. Under §112(2), the phrase “adapted for” does not render claims 1, 8, 11 and 19 indefinite.

In the Final Office Action, the Examiner asserts that the claims of Groups I and III stand rejected under §112(2) because Appellants amended the claims to include the phrase “adapted for,” which renders the claims indefinite (Paper 9, page 3). The terminology “adapted for” is accepted terminology in PTO practice in defining an element of the claimed invention in functional terms. *See* MPEP §2173.05(g). The use of “adapted for” is supported by case law as being proper terminology for defining attributes that a structural element possesses. *In re Venezia*, 530 F2d. 956, 189 USPQ 149 (CCPA) 1976) (“members adapted to be positioned”... serve to precisely define present structural attributes of interrelated component parts of the claimed assembly.”) In addition, the terminology rejected by the Examiner has become well accepted in PTO practice in connection with functional claiming in “means for” claims under 35 U.S.C. §112(6). *See* MPEP §218; *See, DeGraffenreid v. United States*, 20 Ct. Cl. 458, 16 USPQ2d 1321 (Ct. Cl. 1990) (“force generating means adapted to provide...”). Further, a sampling of the U.S. Patent Office’s own database, from 1991 to 2001, indicates that the term “adapted” has been used in the claims of over 162,000 issued patents. Finally, it is well recognized in Patent Office practice that it is not inherently wrong to define some part of an invention in functional terms. *See* MPEP §2173.05(g) (“Functional language does not, in and of itself, render a claim improper.” *See, In re Swinehart*, 439 F2d. 210, 169 USPQ 226 (CCPA 1971)). In view of the foregoing, the “adapted for” terminology is proper claim terminology and does not render the claimed invention indefinite.

If the Examiner has additional rationale for alleging that the claimed use of the term “adapted for” is improper, such rationale was not provided as part of the rejection, as is required by 35 U.S.C. §132.

Accordingly, the §112(2) rejection of the claimed invention of claims 1, 8, 11 and 19 (*i.e.*, Groups I and III) is improper and must be withdrawn.

2. The rejection of obviousness cannot be upheld where the asserted combination of *Iizuka* and *Sussman* admittedly fails to teach the claimed invention including a sorting system adapted for retrieving the reticles from and inserting the reticles into the slots in order to sort the reticles within the cassette.

The asserted combination of *Iizuka* and *Sussman* fails to teach all aspects of the claimed invention of Group I including “a sorting system adapted for retrieving the reticles from and inserting the reticles into the slots in order to sort the reticles within the cassette” (e.g., Group I, claim 1, lines 4-5). The Examiner asserts in the Final Office Action that *Sussman* teaches a device that retrieves and inserts the reticles to and from the cassette slots when sorting (col. 9, lines 9-14; col. 10, lines 48-62), and that Appellants use of the phrase “adapted” in claims 1 and 11 eliminates the need to find within *Sussman* the claimed limitation (Paper 9, page 4). In view of the propriety of the “adapted for” terminology, as discussed in connection with Issue 1, the Examiner did not present a *prima facie* case of obviousness by concluding that it was not necessary to find the claimed limitation in *Sussman* (“..the limitation contained after the phrasing “adapted” in claims 1 and 11 have eliminated the need, to find within *Sussman*, the limitation of a sorting system that retrieves and inserts reticles between multiple cassette slots during sorting” (Paper 9, page 4)). Because the asserted combination does not teach all aspects of Appellants’ claimed invention, as admitted by the Examiner, the Office Action failed to present a *prima facie* case of obviousness.

Further, the cited portion of *Sussman* only teaches orienting cassettes for loading and unloading of the entire cassette and using positional sensors for that procedure (col. 9, lines 9-14; col. 10, lines 48-62). In addition, the cassettes in *Sussman* are oriented with the cassette opening facing upward to facilitate substrate loading for an operator. The cassette is then moved downward for substrate processing (*Sussman*; Figure 2A versus Figure 3A). The teachings of *Sussman* do not correspond to sorting reticles within the cassette, as in Appellants’ claimed invention. The Examiner has failed to present a *prima facie* case of obviousness because the asserted combination fails to teach all aspects of the claimed invention.

Accordingly, the §103 rejection of the claimed invention of Group I based on *Iizuka* in combination with *Sussman* is improper and must be withdrawn.

3. The rejection based on obviousness cannot be upheld without evidence of motivation for the asserted combination of *Iizuka* and *Sussman*.

The §103 rejection of the claims of Group I (e.g., independent claims 1 and 19) cannot be upheld where the Examiner fails to provide evidence of motivation to support the

asserted combination. In rejecting the claims of Group I, the Examiner merely concludes that a stated motivation need not be explicit in the cited art to exist as a motivation (Paper 9, page 4). The Court of Appeals for the Federal Circuit established that the Examiner must identify clear and particular reasons, and provide evidence from the prior art, why one of ordinary skill in the art would have been motivated to select the references and combine (or modify) them. *In re Dembiczak*, 175 F.3d 994, 50 U.S.P.Q.2d 1614 (Fed. Cir. 1999) (“The range of sources available, however, does not diminish the requirement for actual evidence. That is, the showing must be clear and particular.”). The Examiner failed to state a motivation as to why one skilled in the art would be motivated to modify *Iizuka* in the manner proposed. There is no evidence of motivation because one skilled in the art and familiar with the teachings of *Iizuka* would conclude that the proposed modification is extraneous and provides no perceived benefit to *Iizuka*. *Iizuka* teaches the use of single reticle cassette holders, instead of using multiple cassettes that hold multiple reticles, to simplify orientation for each reticle orientation and to protect each reticle from foreign particles (col. 2, lines 3-12; Figs. 5-6). One skilled in the art would not be motivated to substitute the single reticle cassettes of *Iizuka* with the multiple reticle cassettes of *Sussman* because the proposed substitution would be an extraneous modification of *Iizuka*’s reticle conveyance system. In view of the foregoing, the asserted combination is improper because of the lack of proper evidence of motivation to support the combination and because the proposed modification would be contrary to the teachings of *Iizuka*.

Accordingly, the §103 rejection of the claimed invention of Group I based on *Iizuka* in combination with *Sussman* is improper and must be withdrawn.

4. The rejection based on obviousness cannot be upheld where the asserted combination of *Iizuka*, *Sussman* and *Umatate* fails to teach the claimed invention including a controller for controlling the sorting of the reticles in response to a command from a host system.

The asserted combination of *Iizuka*, *Sussman* and *Umatate* fails to teach all aspects of the claimed invention of Group II including “a controller coupled to the sorting system for controlling the sorting of the reticles in response to a command from a host system” (*e.g.*, Group II, claim 2). In the Final Office Action (Paper 9, page 4) the Examiner reiterates the rejection in the First Office Action that *Umatate* teaches a lithography information system

controlled by a host computer that controls the changing and aligning of the reticles (Paper 2, page 5). The Examiner ignores the true teachings of *Umatate* in attempting to find correspondence between *Umatate* and Appellants' claimed invention. *Umatate* teaches changing and aligning masks and glass plates with a photosensitive coating within a stepper (col. 1, lines 16-20; col. 13, lines 6-40). Further, *Umatate*'s system of changing/aligning masks is purposely not dependent on a host computer (col. 3, lines 3-11) in order to avoid the load on the host computer (col. 2, lines 67-68). Conversely, Appellants' claimed invention sorts the reticles within a reticle sorter uses a controller, responsive to commands from a host system, for controlling the sorting of reticles as part of a sorting system. In view of the foregoing, the Examiner failed to present a *prima facie* case of obviousness because the asserted combination fails to teach all aspects of the claimed invention.

Accordingly, the §103 rejection of the claimed invention of Group II based on *Iizuka* in combination with *Sussman* is improper and must be withdrawn.

5. The rejection based on obviousness cannot be upheld where the asserted combination of *Iizuka*, *Sussman* and *Umatate* admittedly fails to teach the claimed invention including an inspection system that includes a tool adapted for detecting flaws in a reticle pattern.

The asserted combination of *Iizuka*, *Sussman* and *Umatate* fails to teach all aspects of the claimed invention of Group III including an "inspection system that includes a tool adapted for detecting flaws in a reticle pattern" (e.g., Group III, claim 8). In the Final Office Action (Paper 9, page 4) the Examiner reiterates the rejection in the First Office Action that *Umatate* teaches a lithography information system that uses various measuring devices to inspect whether a pattern has been correctly applied to a wafer (Paper 2, page 5). In view of the propriety of the "adapted for" terminology, as discussed in connection with Issue 1, the Examiner did not present a *prima facie* case of obviousness by concluding that it was not necessary to find the claimed limitation in *Sussman* ("Applicants own amendments to claims 1 and 8 have again rendered moot Applicants' own arguments with regards to the prior art not containing the claimed limitations. As the claims have been amended to eliminate the claimed limitations at issue, it is unnecessary for the Examiner to address the validity of Applicants' arguments." Paper 9, page 4). Because the asserted combination does not teach

all aspects of Appellants' claimed invention, as admitted by the Examiner, the Examiner has failed to present a *prima facie* case of obviousness.

Further, the Examiner ignores the true teachings of *Umatate* in attempting to find correspondence between *Umatate* and Appellants' claimed invention. *Umatate* teaches measuring line widths of resist patterns after formation on the silicon (col. 4, lines 29-34) and teaches evaluating the performance of the stepper using a test reticle and various measurement techniques (col. 10, line 54- col. 11, line 3). *Umatate* fails to teach measuring the pattern of the reticle itself to detect flaws as in Appellants' claimed invention. In view of the foregoing, the Examiner failed to present a *prima facie* case of obviousness because the asserted combination, as admitted by the Examiner, fails to teach all aspects of the claimed invention.

Accordingly, the §103 rejection of the claimed invention of Group III based on *Iizuka* in combination with *Sussman* is improper and must be withdrawn.

6. The §112(1) rejection is improper because the Specification does provides sufficient description to enable one skilled in the art to understand how the reticle sorter protects, orients and stabilizes the reticles during the reticle sorting process.

In the Final Office Action, the Examiner asserts that the claims of Groups I –III stand rejected under §112(1) because the Specification does not teach allegedly “critical issues” of reticle sorting (Paper 9, page 2). Appellants claim in part: “a sorting system adapted for retrieving the reticles from and inserting the reticles into the slots in order to sort the reticles within the cassette” (*e.g.*, Group I, claim 1, lines 4-5). The Examiner concluded that Appellants must resolve “critical issues” of semiconductor fabrication for the specification to be enabling (Paper 9, page 2). However, these allegedly “critical issues” have long been resolved in semiconductor fabrication, as evidenced by the Examiner’s own acknowledgment that the cited references have “disclosures that contain considerable detail for each specific method of reticle handling” (Paper 9, page 3). Since patents are directed to the skilled artisan, it is well established that teachings already known to and available to the public need not be included in the Specification for Appellants to satisfy the enablement requirement. *See, Paperless Accounting Inc., v. Bay Area Rapid Transit System*, 804 F.2d 659, 231 U.S.P.Q. 81 (Fed. Cir.

1986) (“ A patent applicant need not include in the specification that which is already known to and available to the public.”). In view of the foregoing, protecting, orienting and stabilizing reticles during the sorting process is already known to one skilled in the art and need not be disclosed in the Specification. *See, In re Wands*, 858 F.2d 731, 8 U.S.P.Q. 2d 1400 (Fed. Cir. 1988) (“A patent need not disclose what is well known in the art.”).

Notwithstanding, the Specification teaches that the reticles are protected from the external environment and from dust while they are in docking area 390 and housed in cassettes 320 (Fig. 3A-3B; page 6, line 13 *et Seq.*). The reticles are also oriented and stabilized with a sorting arm (page 6, lines 3-4) as is conventionally known. In addition, the Examiner has acknowledged that Applicants’ Specification “teaches how to resolve the critical issues on an elementary level” (Paper 9, page 2). In view of the teachings in the Specification, Appellants contend that one skilled in the art would understand how to protect, orient and stabilize reticles during the sorting process. Therefore, Appellants have satisfied the enablement requirement.

Accordingly, the claimed invention of Groups I-III are enabled by the Specification and that the §112(1) rejection must be withdrawn.

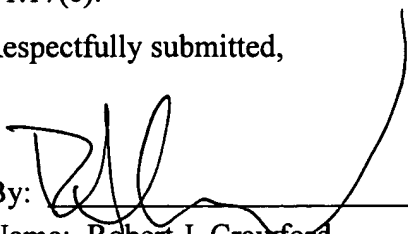
IX. Conclusion

In view of the above distinctions, Appellants believe the claimed invention to be patentable over the cited references since none of the references cited renders obvious Appellants’ claimed invention. Claims 1-12 and 19 remain for consideration. Appellants respectfully request reversal of the rejection as applied to the appealed claims and allowance of the entire application.

Please charge Deposit Account No. 01-0365 (TT2354DIV) in the amount of \$310.00 for filing a Brief in support of an appeal as set forth in §1.17(c).

CRAWFORD PLLC
1270 Northland Drive – Suite 390
St. Paul, MN 55120
(651) 686-6633

Respectfully submitted,

By: 
Name: Robert J. Crawford
Reg. No.: 32,122

APPENDIX OF APPEALED CLAIMS (09/383,508)

1. A reticle sorter coupled between a reticle storing system and one or more photolithography exposure tools, comprising:
 - one or more bays adapted for holding a cassette having slots for reticles; and
 - a sorting system adapted for retrieving the reticles from and inserting the reticles into the slots in order to sort the reticles within the cassette.
2. The reticle sorter of claim 1, further including a controller coupled to the sorting system for controlling the sorting of the reticles in response to a command from a host system.
3. The reticle sorter of claim 1, further including a storage location for holding a reticle, wherein the sorting system may place a selected reticle on the storage location during a sorting operation.
4. The reticle sorter of claim 1, wherein the sorting system includes an arm with claws for grasping edges of reticles.
5. The reticle sorter of claim 1, further including an inspection system, coupled between the one or more bays and an input port of the reticle sorter, for inspecting a characteristic of each reticle.
6. The reticle sorter of claim 5, wherein the inspection system includes a video camera coupled to a display device for presenting a visual image of a reticle.
7. The reticle sorter of claim 5, wherein the inspection system includes a tool for measuring an amount of dust on a reticle.
8. The reticle sorter of claim 5, wherein the inspection system includes a tool adapted for detecting flaws in a reticle pattern.

9. The reticle sorter of claim 5, further including means for moving each of the cassettes from the input port to one of the one or more bays.
10. The reticle sorter of claim 1, wherein the sorting system includes two or more docking locations.
11. The reticle sorter of claim 10, wherein the sorting system is adapted to move reticles between a first cassette in a first one of the two or more docking locations and a second cassette in a second one of the two or more docking locations.
12. The reticle sorter of claim 1, including three or more bays.
19. A reticle sorter coupled between a reticle storing system and one or more photolithography exposure tools, comprising:
- one or more bays adapted for holding a plurality of cassettes having slots for reticles;
 - and
 - a sorting arrangement adapted for retrieving the reticles from and inserting the reticles into the slots so as to sort the reticles between cassettes.